Remarks:

Reconsideration of the application is requested.

Claims 1-6 and 16-25 remain in the application. Claims 18-19 and 21 have been amended. Claims 1-6 have been withdrawn from consideration.

In item 1 on page 2 of the above-identified Office action, the amendment filed on February 11, 2002, has been objected to for introducing new matter under 35 U.S.C. § 132.

In item 3 on page 2 of the Office action, claims 21-23 and 25 have been objected to because of an informality. The informality has been corrected and claim 21 is now dependent on claim 16.

In item 5 on page 3 of the Office action, claim 24 has been rejected as being indefinite under 35 U.S.C. § 112, first paragraph.

More specifically, the Examiner has stated that the limitation "doping the monocrystalline silicon layer differently region by region by ion implantation" has no support in the specification. The Examiner is directed to claim 15 as originally filed, reciting this feature, and to page 5, lines

9-12, of the specification, disclosing this feature in the specification. Hence, the feature "doping the monocrystalline silicon layer differently region by region by ion implantation" is neither new matter nor lacking support in the specification. Consequently, claim 24 has not been amended.

In item 7 on page 3 of the Office action, claim 18 has been rejected as being indefinite under 35 U.S.C. § 112, second paragraph.

More specifically, the Examiner has stated that claim 18 "lacks clarity in its scope and meaning". The Examiner's comments have been noted and claim 18 has been amended accordingly.

A feature recited in dependent claim 19 has been deleted since the feature is already recited in the base claim, claim 16.

It is accordingly believed that the claims meet the requirements of 35 U.S.C. § 112, first and second paragraphs. Should the Examiner find any further objectionable items, Counsel would appreciate a telephone call during which the matter may be resolved. The above-noted changes to the claims are provided solely for the purpose of satisfying formal requirements or are made solely for cosmetic reasons to clarify the claims. The changes are neither provided for

overcoming the prior art nor do they narrow the scope of the claims for any reason related to the statutory requirements for a patent.

In item 9 on page 4 of the Office action, claims 16-20 and 24 have been rejected as being obvious over by *Hsu* (US 5,468,657) in view of *Sato et al.* (US 6,121,117) under 35 U.S.C. § 103 (as discussed by telephone with the Examiner on January 11, 2002).

As will be explained below, it is believed that the claims were patentable over the cited art in their original form and the claims have, therefore, not been amended to overcome the references.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 16 calls for, inter alia:

> fabricating a semiconductor structure having a base layer, an insulation layer, a monocrystalline silicon layer, and an interface between the insulation layer and the monocrystalline silicon layer;

introducing a passivating substance X into the ***monocrystalline silicon layer***, during or after the fabrication of the semiconductor structure; and

heat-treating the semiconductor structure with the passivating substance X for causing the passivating substance X to diffuse both to the interface and to a surface of the ***monocrystalline silicon layer*** opposite to the interface.

Fig. 4 of *Hsu* shows, as described in col. 7, lines 35-38, "a wafer 20 with an upper layer 42 of monocrystalline silicon, a middle layer 59 of nitrogen-implanted silicon dioxide, and a lower monocrystalline silicon 44." It is clear form the drawings and the specification that in *Hsu* the nitrogen is implanted into the ***silicon dioxide layer*** which is an insulator (col. 1, lines 35-36) and ***not*** into the monocrystalline silicon layer 44. In contrast, in the invention of the instant application as recited in claim 16, a passivating substance is implanted into the ***monocrystalline silicon layer***.

Furthermore, as can be clearly seen in Figs. 1D and 3 of *Hsu*, the nitrogen diffuses within the ***silicon oxide layer*** to the edges of the silicon oxide layer 40. In contrast, in the invention of the instant application the passivating substance diffuses within the ***monocrystalline silicon layer***.

The inventive concept of the present invention is based on the underlying realization that after introducing a passivating substance X into the monocrystalline silicon layer, heat-treating the semiconductor structure, removing the screen oxide layer, and subsequent growth of a gate oxide layer on the monocrystalline silicon layer, the monocrystalline silicon layer still contains sufficient passivating substance X to increase the resistance of the gate oxide layer to damage caused by hot charge carriers. There is no disclosure or suggestion in either *Hsu* or *Sato et al.* to introduce a passivating substance into a monocrystalline silicon layer. Furthermore, neither *Hsu* nor *Sato et al.* contain teachings which would suggest the underlying realization on which the present invention is based. Therefore, the invention as recited in claim 16 of the instant application is believed not to be obvious over *Hsu* in view of *Sato et al.*.

It is accordingly believed to be clear that *Hsu* in view of *Sato et al.* do not suggest the features of claim 16. Claim 16 is, therefore, believed to be patentable over the art and since claims 17-25 are ultimately dependent on claim 16, they are believed to be patentable as well.

In view of the foregoing, reconsideration and allowance of claims 16-25 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, the Examiner is respectfully requested to telephone counsel so that, if possible, patentable language can be worked out. In the alternative, the entry of the amendment is requested as it is believed to place the application in better condition for appeal, without requiring extension of the field of search.

Please charge any fees which might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,

MARKUS NOLFF
REG. NO. 37,006

For Applicants

MN:cgm

August 9 2002

Lerner and Greenberg, P.A.
Post Office Box 2480
Hollywood, FL 33022-2480
Tel: (954) 925-1100
Fax: (954) 925-1101

Applic. No. : 09/313,424

Version with markings to show changes made:

Claim 18 (amended). The method according to claim 17, wherein the introducing step [comprises defining] defines an implantation maximum for the passivating substance X in the vicinity of the interface.

Claim 19 (amended). The method according to claim 16, wherein the [passivating substance X is introduced into the semiconductor structure during a fabrication thereof, by] fabricating of the semiconductor structure comprises the following steps:

providing two silicon semiconductor substrates;

oxidizing and forming a respective oxide layer on the two silicon semiconductor substrates;

[selecting an introducing step from the group consisting of introducing the passivating substance X into at least one of the oxide layers, introducing the passivating substance X before the oxidation step into one of the silicon semiconductor substrates, and introducing the passivating substance X after the oxidation step into one of the silicon semiconductor substrates;]

joining the two silicon semiconductor substrates by contacting the two oxide layers; and

partially removing one of the silicon semiconductor substrates and forming the monocrystalline silicon layer.

Claim 21 (amended). The method according to claim [7] 16, which comprises patterning the monocrystalline silicon layer by etching away regions thereof down to the underlying insulation layer.